

SOV/122-59-4-21/28

AUTHOR: Budavey, V.Yu., and Ivanov, Ye.A.

TITLE: On the Classification of Overhauls (O klassifikatsii remontov)

PERIODICAL: Vestnik Mashinostroyeniya, 1959, Nr 4, pp 75-76 (USSR)

ABSTRACT: Referring to Kozyrev, Yu.M. (Vestnik Mashinostroyeniya, 1957, Nr 6) on "The Financing of Overhauls and Modernisation", the present authors deplore the absence of a single classification system for overhauls. The method, suggested in the Reference, of judging a major overhaul by the ratio on the cost of replaced long life components to the cost of the entire overhaul, is criticised. Instead of the relations between long life and short life component costs, the relations between the number of replacement parts and their function should be used. The economic effect of carrying out overhaul work should be judged entirely by the savings achieved in production.

Card 1/1

PRONIN, Boris Alekseyevich, dotsent, kand.tekhn.nauk; SPITSIN, N.A.,  
prof., doktor tekhn.nauk, retsenzent; IVANOV, Ye.A., kand.  
tekhn.nauk, red.; UVAROVA, A.F., tekhn.red.

[V-belt and friction transmissions and variators] Klinore-  
mennye i friktsionnye peredachi i variatory. Moskva, Gos.  
nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 333 p.  
(MIRA 13:3)

(Power transmission)

*IVANOV, Yev*

IVANOV, Yevgeniy Abramovich, kand.tekhn.nauk; STOLBIN, G.B., kand.tekhn.  
nauk, retsenzent; IOHOV, P.I., inzh., red.; EL'KIND, V.D., tekhn.  
red.

[Clutches; construction atlas] Mufty dlia privodov; atlas konstrukttsii.  
Moskva, Gos. nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1957. 190 p.  
(Clutches (Machinery)) (MIRA 11:3)  
(Machine tools)

PHASE I BOOK EXPLOITATION

SOV/3946

Ivanov, Yevgeniy Abramovich, Candidate of Technical Sciences

Mufty privodov (Couplings and Clutches for Drives) 2d ed., rev. and enl. Moscow, Mashgiz, 1959. 410 p. Errata slip inserted. 17,000 copies printed.

Ed. of Publishing House: A.G. Akimova; Tech. Ed.: A.Ya. Tikhonov; Managing Ed. for Literature on Machinery and Instrument Construction (Mashgiz): N.V. Pokrovskiy, Engineer.

**PURPOSE:** This book is intended for engineers and technicians engaged in the design and operation of drives. It may also be used by students of schools of higher technical education in the course, Machine Elements.

**COVERAGE:** The book deals with the design, construction, and operation of couplings and mechanical, electromagnetic, and hydraulic clutches. The most commonly used mechanisms for clutch control and the properties of friction materials used in clutches are described. V.M. Bogdan, Engineer, wrote Chapter VIII. There are 65 references: 61 Soviet, 3 German, and 1 English.

Card 1/6

L 00847-66 EWT(1)/EEC-4/T/FCS(k) WR

ACCESSION NR: AP5015808

UR/0109/65/010/006/1005/1012  
621.396.677.833.2

AUTHOR: Ivanov, Ye. A. 44

TITLE: Linear system of spherical radiators 25644

SOURCE: Radiotekhnika i elektronika, v. 10, no. 6, 1965, 1005-1012

TOPIC TAGS: spherical radiator, spherical radiator linear system

ABSTRACT: A rigorous solution is offered of the problem of the field created by a linear system of  $2N + 1$  coaxial spherical radiators, each of them consisting of a pair of hemispheres with a small gap between them; an external axisymmetrical voltage is applied to the gap. The method permits obtaining numerical results that describe the directional characteristics within a fairly wide frequency band and the range of  $1_{ss}$  as,  $V_s$  (with  $s = 0, \pm 1, \dots, \pm N$ ) parameters, provided no contacting radiators exist in the system. A particular problem of two radiators is considered and solved numerically. Approximate formulas derived from the above rigorous solution permit describing the directional characteristics of a  $2N + 1$  radiator system, with certain assumptions re the parameters that determine the wave-zone field. Orig. art. has: 5 figures and 30 formulas.

Card 1/2

I 00847-66

ACCESSION NR: AP5015808

ASSOCIATION: none

SUBMITTED: 23Apr64

ENCL: 00

SUB CODE: EC

NO REF SOV: 005

OTHER: 000

Card <sup>dy</sup> 2/2

**"APPROVED FOR RELEASE: 08/10/2001**

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IVANOV, Ye.A.

Field of a magnetic dipole coaxial with two discs. Izv. vys. ucheb.  
zav.; radiofiz. 7 no.6:1133-1149 '64.

(MIRA 18:3)

1. Institut mekhaniki i vychislitel'noy tekhniki AN SSSR.

"APPROVED FOR RELEASE: 08/10/2001

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ACCESSION NR: AFG015119

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APPROVED FOR RELEASE: 08/10/2001

CIA-RDP86-00513R000619210009-3"

IVANOV, Ye.A.

Linear system of spherical radiators. Radiotekh. i elektron.  
10 no.6:1005-1012 Ja '65. (MIRA 18:6)

IVANOV, Ye.A., kand. filosof. nauk (Moskva)

Questionable and unquestionable. Priroda 54 no.5:88 My '65.  
(MIRA 18:5)

IVANOV, Ye. B.

VODNEV, G.G.; SHELKOV, A.K.; DIDENKO, V.Ye.; FILIPPOV, B.S.; TSAREV, M.H.;  
ZASHVARA, V.G.; LITVINENKO, M.S.; MEDVEDEV, K.P.; MOLODTSOV, I.G.;  
IGALOV, K.I.; RUBIN, P.G.; SAPOZHNIKOV, L.M.; TYUTYUNNIKOV, G.H.;  
DMITRIYEV, M.M.; LEYTES, V.A.; LERNER, B.Z.; MEDVEDEV, S.M.; REYKAKIN,  
A.A.; TAYCHER, M.M.; TSOGLIN, M.E.; DVORIN, S.S.; RAK, A.I.; OBUKHOV..  
SKIY, Ya.M.; KOTKIN, A.M.; ARONOV, S.G.; VOLOSHIN, A.I.; VIROZUB, Ye.V.;  
SHVARTS, S.A.; GINSBURG, Ya.Ye.; KOLYANDR, L.Ya.; BHIETSKAYA, A.P.;  
KUSHNEREVICH, N.R.; BRODOVICH, A.I.; NOSALEVICH, I.M.; SETROMBERG, B.I.;  
MIROSHNICHENKO, A.M.; KOPELIOVICH, V.M.; TOPORKOV, V.Ya.; AFONIN, K.B.;  
GOFTMAN, M.V.; SEMENENKO, D.P.; IVANOV, Ye. B.; PEYSAKHZON, I.B.;  
KULAKOV, N.K.; IZRAELIT, E.M.; KVASHA, A.S.; KAPTAN, S.I.; CHERMNYKH,  
M.S.; SHAPIRO, A.I.; KHALABUZAR', G.S.; SEKT, F.Ye.; GABAY, L.I.;  
SMUL'SON, A.S.

Boris Iosifovich Kustov; obituary. Koks i khim. no.2:64 '55.(MLRA 9:3)  
(Kustov, Boris Iosifovich, 1910-1955)



IVANOV, Ye.B.

DIDENKO, V.Ye.; TSAREV, M.N.; DMITRIYEV, M.M.; LEYTES, V.A.; OBUKHOVSKIY, Ya.M.; IVANOV, Ye.B.; CHERTOX, V.T.; URSALENKO, R.N.; KRIGER, I.Ya.; PINCHUK, A.K.; ANTONENKO, N.Z.; SMUL'SON, A.S.; VASIL'CHENKO, S.I.; DRASHKO, A.M.; RAYEVSKIY, B.N.; KUCHIRYAVENKO, D.N.; SAVCHUK, A.I.; ZHURAVLEVA, L.I.; BAUTIN, I.G.; KHRIYENKO, V.Ya.; MOSENKO, N.K.; CHEBONENKO, G.P.; LISSOV, L.K.; MAMONTOV, V.V.; BHLUKHA, A.A.; POYDUN, V.F.; VOLODARSKIY, M.B.; KAL'CHENKO, G.D.; LEVCHENKO, V.M.; BASHKIROV, A.A.; VOROB'YEV, M.F.; IL'CHENKO, L.I.; PODSHIVALOV, F.S.; MOGIL'NIY, P.P.; LEVI, A.R.; VASLIAYEV, G.P.; DURNEV, V.V.; OSTPA, S.S.; SAMOFALOV, G.N.; FOMIN, A.F.; LESHCHINA, A.I.; FANKEL'BERG, G.Ye.; KHODANKOV, A.T.; MAKARENKO, I.S.; KARPOVA, K.K.; VASILENKO, I.M.; VOLOSHCHUK, A.S.; SHELKOV, A.K.; FILIPPOV, B.S.; TYUTYUNNIKOV, G.N.; DOLINSKIY, M.Yu.; NINI-TINA, P.P.; MEDVEDEV, S.M.; TSOGLIN, M.E.; LERGER, R.Z.; BOGACHEV, V.I.

Mikhail Iakovlevich Moroz; obituary. Koks i khim.no.3:64 '56.(MLBA 9:8)  
(Moroz, Mikhail Iakovlevich, 1902?-1956)

SOV/68-59-1-17/26

AUTHORS: Ivanov, Ye.B. and Petrenko, D.S.

TITLE: At the Coking Works of the Krivoy Rog Metallurgical Works (Na koksokhimicheskom proizvodstve Krivorozhskogo metallurgicheskogo zavoda)

PERIODICAL: Koks i Khimiya, 1959, Nr 1, pp 60 - 61 (USSR)

ABSTRACT: Technical council for coking production of the Krivoy Rog Works considered the results of investigation of the dephenolising plant and excessive corrosion on the benzole plant. Poor results obtained on the effluent dephenolising plant were found to be caused by partial blocking of hurdles in the absorber. Replacement of hurdles and an improvement in the effluent spraying system decreased phenol losses from 0.6 - 0.7 g/liter to 0.15 - 0.25 g/liter. In order to decrease corrosion on benzole plant, the effect of additions of calcined soda and gaseous ammonia will be tested. For oil cooling the use of zinc-coated tubes and testing of enamelled tubes is recommended.

For the construction of the benzole plant, the use of the following materials is recommended: benzole column - cast iron, silumin for other parts of the column; cast iron and steels Kh13N, 15KhM, 12KhMZA and 18 KhNVA for

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SOV/68-59-1-17/26

At the Coking Works of the Krivoy Rog Metallurgical Works

tubes in heat exchangers; steels 1Kh18N9T and Kh17T for  
tubes in pre-heaters; cast iron, low-alloy steel and  
St.3 steel for piping connections.

Card 2/2

SOV/68-59-8-29/32

AUTHORS: Ivanov, Ye. and Petrenko, D.

TITLE: ~~Coke-Chemical~~ Production of the Krivoy Rog  
Metallurgical Works (Na koksokhimicheskom proizvodstve  
Krivorozhskogo metallurgicheskogo zavoda)

PERIODICAL: Koks i khimiya, 1959, Nr 8, p 57 (USSR)

ABSTRACT: The Technical Council for Coke-Chemical Production  
decided on the advisability of the construction of a  
plant for the production of ammonia using hydrogen  
from coke oven gas and nitrogen from an oxygen plant.

Card 1/1

IVANOV, Ye.B.; PETRENKO, D.S.; FARTUSHNAYA, R.M.

Change of the flow system for processing flushing liquors.  
Koks i khim. no.5:41-43 '60. (MIRA 13:7)

1. Krivorozhskiy metallurgicheskiy zavod.  
(Krivoy Rog--Coke industry--By-products)

IVANOV, Ye.B.; BELUKHA, A.A.; MUCHNIK, D.A.

Quality of coke as determined by its content in the 40-25 mm class.  
Koks i khim. no.3:29-31 '61. (MIRA 14:4)

1. Krivorozhskiy metallurgicheskiy zavod.  
(Coke)

IVANOV, Ye.B.; PETRENKO, D.S.; FARTUSHNAYA, R.M.

Introduction of a new flow chart into the practice of the ammonia-pyridine division. Voks i khim. no. 5:37-38 '61. (MIRA 14:4)

1. Krivorozhskiy metallurgicheskiy zavod.  
(Krivoy rog—Coke industry—By-products) (Ammonia)  
(Pyridine)

IVANOV, Ye.B.; KUSHNIREV, V.F..

Prolonged coal storage.. Koks i khim. no.7:3 JI '61.(MIRA 14:9)

1. Krivorozhskiy metallurgicheskiy zavod.  
(Coal—Storage)



KUSHNIROV, V.F.; IVANOV, Ye.B.

Profit by advantages of the DK flow sheet for improving the  
quality of coke. Koks i khim. no.3:12-14 '62. (MIRA 15:3)

1. Krivorozhskiy metallurgicheskiy zavod.  
(Coke)

IVANOV, Ye.B.; FARTUSHNAYA, R.M.

Effect of the coking time on the mechanical properties of coke.  
Koks i khim. no.11:28-29 '62. (MIRA 15:12)

1. Krivorozhskiy metallurgicheskiy zavod.  
(Coke--Testing)

MUCHNIK, D.A.; IVANOV, Ye.B.; KUSHNIROV, V.F.; VASIL'CHENKO, S.O.; KROTOVA, N.I.

Effect of the coarseness of crushing of the various coal charge  
components of the quality of coke. Koks i khim. no.1:5-7 '63.

(MIRA 16:2)

1. Krivorozhskiy metallurgicheskiy zavod.  
(Coke)

BRUK, A.S.; LEYBOVICH, R.Ye.; IVANOV, Ye.B.; SMUL'SON, A.S.; BELUKHA, A.A.; MUCHNIK, D.A.; FARTUSHNAYA, R.M.; Prinimali uchastiye: KUTEVOY, P.M.; GOL'DBERG, P.Ya.; NECHAYEVA, A.P.; KUBYSHKINA, L.I.; SHEYKHET, A.M.; VASIL'CHENKO, S.I.; BARASH, D.A.; KARPOVA, K.K.; KHODANKOV, A.T.

Effect of temperature changes in the control heating flues on the quality of the metallurgical coke. Koks i Khim. no.7:26-27 '63. (MIRA 16:8)

1. Dnepropetrovskiy metallurgicheskiy institut (for Bruk, Leybovich, Kutevoy, Gol'dberg, Nechayeva, Kubyshkina, Sheykheta).
  2. Krivorozhskiy metallurgicheskiy zavod (for Ivanov, Smul'son, Belukha, Muchnik, Fartushnaya, Vasil'chenko, Barash, Karpova, Khodankov).
- (Coke ovens) (Coke--Testing)

IVANOV, Ye.B.; SMUL'SON, A.S.; BELUKHA, A.A.; MUCHNIK, D.A.; KAL'CHENKO, V.I.

Predicting the size of coke. Koks i khim. no.10:14-19 '62.  
(MIRA 16:9)

1. Krivorozhskiy metallurgicheskiy zavod.  
(Coke)

IVANOV, Ye.B.

In connection with the article "Concerning the hydraulic system of coke ovens." Koks i khim. no.10:29-31 '63. (MIRA 16:11)

1. Krivorozhskiy metallurgicheskiy zavod.

CHERTOK, V.T.; LEYBOVICH, R.Ye.; IVANOV, Ye.B.; SHCHEGOLEV, S.V.;  
FARTUSHNAYA, R.M.; MUCHNIK, D.A.; TSYPIN, A.Z.

Effect of coking time on the quality of coke. Koks i khim.  
no.1:23-25 '64. (MIRA 17:2)

1. Pridneprovskiy sovet narodnogo khozyaystva (for Chertok).
2. Dnepropetrovskiy metallurgicheskiy institut (for Leybovich).
3. Krivorozhskiy metallurgicheskiy zavod (for Ivanov,  
Shchegolev, Fartushnaya, Muchnik). 4. Koksokhimstantsiya  
(for TSypin).

IVANOV, Yo.B.

Increasing the labor productivity. Koks i khim. no.1:51-53  
'64. (MIRA 17:2)

1. Zamestitel' direktora po koksokhimicheskomu proizvodstvu  
Krivorozhskogo metallurgicheskogo zavoda.



IVANOV, Ye.B.

Engineering progress and expansion of coke by-products  
production at the Krivoy Rog Metallurgical Plant. Met. 1  
gornorud. prom. no.3:41-43 My-Je '64.

(U.S.A. 17:10)

IVANOV, Ya.B.; FARTUSHENAYA, R.M.

Effect of the moisture of the charge on the mechanical properties  
of coke. Koks i khim. no.7:31-32 '65.

(MIRA 18:8)

1. Krivorozhskiy metallurgicheskiy zavod.

IVANOV, Ye. D.

Agriculture

Buildings for cattle. Moskva, Gos. izdvo selkhoz lit-ry, 1951.

9. Monthly List of Russian Accessions, Library of Congress, June 195<sup>2</sup>~~1~~, Uncl.

ABKHIPOV, P.P., inzhener; IVANOV, Ys.D., inzhener; KRYLOV, N.V., inzhener-arkhitektor; NIKANDROV, B.I., inzhener-arkhitektor; NOSKOV, B.G., inzhener-arkhitektor; RYABTSEV, M.N., vetvrach; SOXERANICHEV, N.S., inzhener-arkhitektor; TSIBUL'SKIY, L.A., kandidat sel'skokhozyaystvennykh nauk; PIOTROVSKIY, M.I., inzhener, retsentsent; VOL'FOVSKAYA, V.N., redaktor; FEDOTOVA, A.F., tekhnicheskiiy redaktor.

[Handbook on the construction of farm buildings] Spravochnik po sel'skokhoziaistvennomu stroitel'stvu. Moskva, Gos. izd-vo selkhoz. lit-ry.  
Vol. 2. 1952. 579 p. (MLRA 8:2)  
(Farm buildings) (Building)

IVANOV, Ye.D.

[Silo (framework and facing) having a capacity of 220 cubic meters]  
Silosnaia bashnia karkasno-obshivnaia emkost'iu 220 kub. m. Proekt  
no.1121. Moskva, 1955. 6 p., 6 plans. (MIRA 9:6)

1. Russia (1923- U.S.S.R.) Ministerstvo gorodskogo i sel'skogo  
stroitel'stva.

(Siles)

IVANOV, Ye.D.; RYAZANTSEVA, L.P., red. izi-va; BOROVNEV, N.K., tekhn.  
red.

[Handbook on accident prevention for workers using mineral insulating materials ("slag felt," glass wool)] Pamiatka po tekhnike bezopasnosti dlia rabochikh-izolirovshchikov s primeneniem mineral'nykh izoliatsionnykh materialov (shlakovoilok, steklovata). Moskva, Gosstroizdat, 1961. 15 p. (MIRA 15:5)  
(Insulation (Heat))

IVANOV, Yevgeniy Dmitriyevich; PATENOVSKAYA, M.I., red.;  
TARKHOVA, K.Ye., tekhn. red.

[Safety manual for workers using mineral insulating materials ("slag felt" and glass wool)] Pamiatka po tekhnike bezopasnosti dlia rabochikh-izolirovshchikov, rabotaiushchikh s mineral'nymi izoliatsionnymi materialami (shlakovoilok, steklovata). Izd.2., perer. i dop. Moskva, Gosstroizdat, 1963. 28 p.

(MIRA 17:2)

ROZEN, Boris Yakovlevich; IVANOV, Ye.F., red.; SUBBOTINA, G.M., tekhn.red.

[Secrets of the black rock] Tainy chernogo kamnia. Novosibirsk,  
Novosibirskoe knizhnoe izd-vo, 1960. 113 p. (MIRA 13:9)  
(Coal)



GORYACHEV, Ye.Z., inzhener; IVANOV, Ye.G., inzhener; NIKITINA, A.A., inzhener;  
PESTRIKOV, V.V., inzhener; YEL'SKIY, I.M., inzhener; KOROSTELIN, V.P.,  
inzhener; REVZIN, Ya.A., inzhener.

Operation practices of the Kuybyshev automatic telegraph. Vest.sviazi  
16 no.2:17-20 P '56.  
(MLRA 9:7)

1.Nachal'nik Kuybyshevskogo telegrafa (for Goryachev).  
(Kuybyshev--Telegraph--Perforating system)

IVANOV, Ye.G., burovoy master, deputat Verkhovnogo Soveta SSSR

Our deep drilling practices. Neftianik 7 no.9:3-9 S '62.

(MIRA 16:7)

1. Kontora bureniya neftepromyslovogo upravleniya Ob'yedineniya  
Chernomorskoy neftyanoy promyshlennosti.

(Kuban—Oil well drilling)

IVANOV, Ye.G.; KORCHAGIN, V.N.; TSYUPA, N.I.

More about multipurpose drilling crews. Neft. khoz. 42 no. 5:  
24-26 My '64. (MIRA 17:5)

MURINA, G.A.; IVANOV, Ye.G.

Excessive argon in rocks. Inform.sbor. VSEGEI no.54:11-17 '62.  
(MIRA 17:1)

26145

S/044/61/000/005/008/025

C111/C444

16-3400

AUTHOR:

Ivanov, Ye. G.

TITLE:

The application of the averaging principle for the investigation of the stability of the solution of the differential equation of Duffing

PERIODICAL:

Referativnyy zhurnal, Matematika, no. 5, 1961, 33 - 34, abstract 5B163. (Nauchn. ts. Tul'sk. gorn. in-t, 1958, sb. 1, 206 - 222)

TEXT:

Considered is the generalised Duffing equation

$$\ddot{x} + 2\mu\dot{x} + F(x) = R \cos \nu t, \quad (1)$$

where

$$F(x) = \gamma + nx + \varepsilon \varphi(x), \quad (2)$$

$\gamma, n, \mu, R$  are constants and  $\varepsilon$  a sufficient small positive parameter. By application of the averaging principle, the following relations between frequency and oscillation amplitude are obtained.

$$\begin{aligned} I_1 &\geq \pi \nu^2 a, & I_2 &\geq \pi \nu^2, \\ I_1 &\leq \pi \nu^2 a, & I_2 &\leq \pi \nu^2, \end{aligned} \quad (3)$$

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The application of the averaging...

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C111/C444

where  $I_1 = \int_{-\pi}^{\pi} F(a \cos u) \cos u du,$

$$I_2 = \int_{-\pi}^{\pi} F'(a \cos u) \cos^2 u du \quad (4)$$

These relations allow immediately the determination of zones of stable and unstable stationary oscillations, only depending on the form of the non-linearity  $F(x)$ . There are also considered various special cases of  $F(x)$ ; a geometrical interpretation of the corresponding states of limit oscillations is given. At last it is shown that the result of Duffing is a special case of the result obtained in this paper.

(Abstracter's note: Complete translation.)

Card 2/2

46(1) 14.3400

AUTHOR: Ivanov, Ye.G.

SOV/155-58-4-6/34

TITLE: On the Question of the Stability According to the First Approximation (K vorposu ob ustoychivosti po pervomu priblizheniyu)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye nauki, 1958, Nr 4, pp 39 - 42 (USSR)

ABSTRACT: Let the system:

$$(1) \frac{dx_s}{dt} = p_{s1}x_1 + p_{s2}x_2 + \dots + p_{sn}x_n + \varphi_s(t, x_1, \dots, x_n)$$

be given, and the system of first approximation

$$(2) \frac{dx_s}{dt} = p_{s1}x_1 + p_{s2}x_2 + \dots + p_{sn}x_n.$$

As it is well-known (see I.G. Malkin [Ref 1]) one can conclude from the existence of a Lyapunov function  $\mathcal{Q}(t, x_1, \dots, x_n)$  for (2) that the stability of the solutions of (1) for sufficiently small  $\varphi_s$  is fulfilled. The author

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On the Question of the Stability According to the  
First Approximation

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Lyapunov function  $\mathcal{Q} = \sum_{i=1}^n A_i(t) x_i^2$  with the derivative

$$\frac{d\mathcal{Q}}{dt} = - \sum_{i=1}^n x_i^2 - \sum_{i,s=1}^n B_{si} x_i x_s \text{ and gives the conditions}$$

which must be satisfied by  $A_i(t)$  and  $B_{si}$  in order that the  
stability be guaranteed. ~~1~~

There are 2 Soviet references.

ASSOCIATION: Tul'skiy gornyy institut (Tula Mining Institute)

SUBMITTED: June 26, 1958

Card 2/2



IVANOV, Ye. V., Cand Phys-Math Sci --(diss) "Application of Lyapunov's direct method to an examination of the stability of systems of linear differential equations having periodic coefficients and certain non-linear systems", Tula, 1960, 5 pp. (Tula Mining Institute)  
(HL, 26-60, 105)

S/044/63/000/001/012/053  
A060/A000

AUTHOR: Ivanov, Ye.G.

TITLE: Application of A.M. Lyapunov's direct method to the investigation of the stability of a system of linear differential equations with periodic coefficients

PERIODICAL: Referativnyy zhurnal, Matematika, no. 1, 1963, 40, abstract 1B172 (Nauchn. tr. Tul'sk. gorn. in-t, 1961, coll. 3, 91 - 101)

TEXT: The criterion for asymptotic stability is obtained for the system  

$$\dot{x} = p_{11}(t)x + p_{12}(t)y, \quad \dot{y} = p_{21}(t)x + p_{22}(t)y,$$

where  $p_{ij}(t)$  are continuous periodic functions. The criterion is derived with the aid of Lyapunov's function  $V = A(t)x^2 + B(t)y^2$ , where  $A(t)$  and  $B(t)$  are periodic functions. In the example analyzed an error is admitted: the maximum of the expression in line 10 of page 100 is attained not at  $t = \frac{3}{4}\pi$ , but at  $t = \frac{\pi}{4}$ ; as a consequence of this the author's method yields a result inferior to the method of averaging of the coefficients [see Chetayev, N.G., Ustoychi-

Card 1/2

Application of A.M. Lyapunov's direct method to ....

S/O44/63/000/001/012/053  
A060/A000

vost' dvizheniya (Stability of motion), Gostekhizdat, 1946]. The stability criteria (1, 12) and (2, 8) contain misprints.

A.F. Filippov

[Abstracter's note: Complete translation]

Card 2/2

I 46317-66 EWP(e)/EWT(m)/T/EWP(t)/ETI/EWP(k) IJP(c) JD/JG/DJ

ACC NR: AP6030183

SOURCE CODE: UR/0131/66/000/005/0027/0029

AUTHOR: Ivanov, Ye. G.; Filippov, A. F.; Min'kov, D. B.; Makarova, T. S.; Vinogradova, L. V. 23  
B

ORG: [Ivanov; Filippov] Moscow Institute of Steel and Alloys (Moskovskiy institut stali i splavov); [Min'kov; Makarova; Vinogradova] Podol'sk Refractories Plant (Podol'skiy zavod ognepornykh izdeliy)

TITLE: Melting crucibles made from cerium dioxide 21 27

SOURCE: Ogneupory, no. 5, 1966, 27-29

TOPIC TAGS: powder metallurgy, metallurgic furnace

ABSTRACT: The authors describe the manufacture of  $\text{CeO}_2$  melting crucibles by powder metallurgy and slip casting. Cerium dioxide powder with grains measuring 5-15  $\mu$  in diameter was mixed with 6-8% binder based on 95% paraffin and 5% oleic acid. A steel mold was used which was prelubricated with a thin layer of oleic acid. Pressing was done at a pressure of 200  $\text{kg/cm}^2$ . The crucible was then slowly heated for 10-12 hours to 1200°C and final sintering was done in a resistance furnace at 1500-1600°C. Water suspensions of cerium dioxide were used for slip casting. The slip had a pH of 4-5 and a moisture content of 58-60%. The suspension was allowed to stand for at least 24 hours before casting. After removal from the mold, the crucibles were heated to 1700-1750°C at a rate of 30-40 deg/hr and held at the final

Card 1/2

UDC: 666.78

L 46317-56

ACC NR: AP6030183

temperature for 6-8 hours. The apparent density (volumetric weight) of the crucibles was 6.6-6.4 g/cm<sup>3</sup> and the apparent porosity was less than 1%. A comparison of the calculated and residual cerium concentrations in alloys melted in CeO<sub>2</sub> and La<sub>2</sub>O<sub>3</sub> crucibles shows satisfactory retention of Ce in cerium dioxide crucibles during melting. Metallographic analysis of nickel-cerium alloys melted in CeO<sub>2</sub> crucibles in a vacuum shows that the purity of the metal is comparable to the purity of nickel melted in alumina crucibles with hydrogen treatment. Orig. art. has: 1 figure and 1 table. [JPRS: 36,774]

SUB CODE: 11, 13 / SUBM DATE: none / ORIG REF: 003 / OTH REF: 001

Card 2/2 *egh*

L 01737-67 EWT(m)/EWP(t)/ETI IJP(c) JD/HW/JG  
ACC NR: AP6027004 (A) SOURCE CODE: UR/0148/66/000/005/0069/0072

AUTHOR: Ivanov, Ye. G.; Stomakhin, A. Ya.; Medvedeva, G. M.; Filippov, A. F.

ORG: Moscow Institute of Steel and Alloys (Moskovskiy institut stali i splavov)

TITLE: Investigation of the solubility of nitrogen in melts of nickel with cerium

SOURCE: IVUZ. Chernaya metallurgiya, no. 5, 1966, 69-72

TOPIC TAGS: ~~solubility, nitrogen, nickel alloy, cerium~~, *MOLTEN METAL*

ABSTRACT: The investigation was performed with the aid of the experimental setup used by A. Ya. Stomakhin (Candidate degree dissertation, Moscow Institute of Steel and Alloys, 1965). Six discrete melts of Ce-treated Ni (refined electrolytic Ni at least 99.987% pure, alloyed with 99.2% pure Ce) were melted at 1550°C (1823°K) in identical CeO<sub>2</sub> crucibles (used in order to reduce to a minimum the interaction between the Ce of the metal and the crucible). The time needed for the equilibrium to set in (10-20 min) was the longer the higher the Ce content of the alloy was. All the six melts were brought under the same temperature and pressure (298°K, 760 mm Hg) in order to assure the reproducibility of findings and subjected to tests for determining the solubility of nitrogen in these melts by the method described in Stomakhin's work.

Card 1/3

UDC: 669.24:541.8:546.17

L 04157-57

ACC NR: AP6027004

The findings (Fig. 1) show that Ce reduces the activity (increases the solubility) of N in the

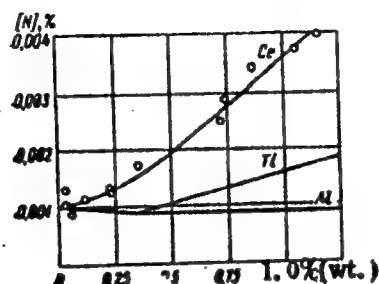


Fig. 1. Effect of Ce, Ti and Al on the solubility of N in molten Ni at 1550°C and  $N_2$  pressure of 1 atm

melt to a much greater extent than other metals, e.g. Ti and Al, even though the affinity of Ce to N is much smaller than that of Ti. This may be attributed to the higher activity coefficient of Ce, compared with Ti and Al, in molten diluted Ni-base alloys. The N content of Ce-treated Ni alloy is extraordinarily low ( $<0.001\%$  N for alloys containing 0.38 and 2.87% Ce). It is further established that no nitride phase forms in these alloys at 1550°C and  $P_{N_2} = 1$  atm.

Card 2/3

L 04737-67

ACC NR: AP6027004

3

At room temperature, however, the alloy with 0.3% contains, as shown by metallographic examination, a nitride phase in the form of minute inclusions of a color that is gray in a bright field and pink in a dark field. Therefore, by analogy with the nitrides of Ti and Al, the nitrides of Ce also form in Ni alloys on cooling. Orig. art. has: 4 figures, 3 tables. <sup>21</sup>

SUB CODE: 13, 11 / SUBM DATE: 20Jan66 / ORIG REF: 001/ OTH REF: 002

Card

3/3



L 37702-66 EWT(m)/T/ENF(t)/ETI IJP(c) JD/HW/JG/NB

ACC NR: AP6024525 SOURCE CODE: UR/0148/66/000/007/0077/0079

AUTHOR: Ivanov, Ye. G.; Opara, B. K.; Filippov, A. F.

ORG: Moscow Institute of Steel and Alloys (Moskovskiy institut stali i splavov)

TITLE: The oxidation resistance of Kh20N80 alloy containing lanthanum and cerium

SOURCE: IVUZ. Chernaya metallurgiya, no. 7, 1966, 77-79

TOPIC TAGS: *metal oxidation, corrosion resistance,* nickel alloy, chromium containing alloy, lanthanum containing alloy, cerium containing alloy, alloy oxidation resistance / Kh20N80 alloy

ABSTRACT: The purpose of this study was to determine the effect of small additions of lanthanum (0.001—0.148%) and cerium (0.001—0.16%) on the oxidation resistance of Kh20N80 alloy in air at 900—1200C. Specimens were held at all test temperatures for two hours and at 900C also for 200 hours. The oxidation resistance was found to increase with increasing cerium content (see Fig. 1). Alloying with lanthanum had the same effect. The increase of oxidation resistance was associated with improved protective properties of the oxide films formed on the lanthanum and cerium alloys. As the cerium content

Card 1/2

UDC: 669.14.018.45:669.087.046.51

L 37702-66

ACC NR: AP6024525

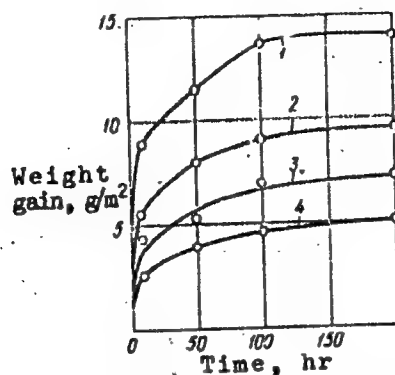


Fig. 1. Weight gain of Kh2ON80 alloy containing 0 (1), 0.006 (2), 0.033 (3), and 0.145% cerium (4) versus test duration at 900C

increased, the volatility of  $\text{Cr}_2\text{O}_3$  oxide dropped sharply. This is explained by a formation of complex spinel-type oxides, which greatly improved the oxidation resistance. Orig. art. has: 5 figures. [FM]

SUB CODE: 11/ SUBM DATE: 19Mar66/ ORIG REF: 007/ OTH REF: 002  
 ATD PRESS: 5041 heat resistant alloy, 8  
 Card 2/2

BLUMOVICH, S.A.; PYAKHKLAMETS, A.Yu. [Pakhklamets, A.]; KARASEV, I.M.;  
IVANOV, Ye.I.

Work became less strenuous but labor productivity increased.  
Put' 1 put. khoz. 9 no.11:39-40 '65. (MIRA 18:11)

1. Nachal'nik Tartuskoy distantzii Pribaltiyskoy dorogi  
(for Blyumovich). 2. Starshiy inzh. Tartuskoy distantzii  
Pribaltiyskoy dorogi (for Pyakhklamets). 3. Starshiy dorozhnyy  
master Tartuskoy distantzii Pribaltiyskoy dorogi (for Karasev,  
Ivanov).

PA 18/49T30

IVANOV, YE. K. MAJ.

USSR/Medicine - Gangrene  
Medicine - Infection

Nov 48

Significance of Fusospirochetal Infection in the  
Etiology of Progressive Gangrenes of the Skin and  
Subcutaneous Interstitial Tissue," Capt D. Kh.  
Ivanova, Med Corps, 1st Div, 1st Corps,  
Med Hosp, 31 pp

"Khirurgiya" No 11

Fusospirochetal Gangrene is rare. Describes two  
cases. Concludes that, in necrotic infection of a  
fresh wound or scar tissue, necessary to bear in  
mind possibility of progressive skin gangrene  
(fusospirochetal or synergetic). Great interest  
18/49T30

USSR/Medicine - Gangrene (Contd)

Nov 48

attaches to study of bacterial flora in cases of  
synergetic gangrene to determine the specific  
infective agent. Cytophotographic investigation of  
wound exudate by Pokrovskaya's method enables a  
rapid determination of the wound flora, eliminating  
diseases other than fusospirochetal infection and  
permitting specific treatment to be prescribed in  
time. Discusses use of salvarsan and sulfamides.

18/49T30

IVANOV, Ye.K.; AZHEGANOV, L.P.; LOPATIK, V.G.; FREGER, D.P., tekhn.red.

[Experience in mobilizing internal production resources in the  
Kalinin District of the city of Leningrad] Opyt mobilisatsii  
vnutrennikh rezervov proizvodstva v Kalininskom raione  
g. Leningrada. Leningrad, 1955. 54 p. (Leningradskii dom nauchno-  
tekhnicheskoi propagandy. Informatsionno-tekhnikheskii listok,  
nos.60(748)/61(749)/62(750)) (MIRA 10:12)  
(Technical education)

IVANOV, Ye. N.

PHASE I BOOK EXPLOITATION 899

Mekhanizatsiya i avtomatizatsiya liteynogo proizvodstva (Mechanization and Automatic Control of Founding Processes) [Leningrad] Lenizdat, 1957. 224 p. 3,000 copies printed.

Ed.: (title page): Sokolov, A.N.; Ed.: (inside book): Yemel'yanova, Ye. V.; Tech. Ed.: Rodchenko, N.I.

PURPOSE: This book is intended for engineers and technical personnel working in the founding industries.

COVERAGE: The book presents experience gained by several Leningrad plants in the field of mechanization and automation of metal casting processes. It is stated that in total production of castings the Soviet Union is catching up with the U.S.A., and in production of steel castings the USSR is already leading. Soviet production of castings in 1955 amounted to 11 million tons, 2 million of which were steel castings. No personalities are mentioned. There are 33 references, 29 of which are Soviet, 3 English, and 1 German.

Card 1/3

Mechanization and Automatic (Cont.)

899

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Card 2/3

Mechanization and Automatic (Cont.)	899
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AVAILABLE: Library of Congress (TS 233.S6)	

Card 3/3

GO/nah  
12-12-58



25(5)

SOV/117-59-2-16/27

AUTHOR:

Ivanov, Ye.K., Engineer

TITLE:

Five Years of Work in Group Technology (Pyat' let raboty po gruppovoy tekhnologii)

PERIODICAL:

Mashinostroitel', 1959, Nr 2, pp 28-29 (USSR)

ABSTRACT:

The author gives a general account of the introduction of the group method of production in an unidentified plant and names a few progressive workers who contributed to this effort. He illustrates the success by figures of the growth of production and reduction of cost price of production. The article is very general.

Card 1/1

IVANOV, Y.E.K.

Ученые института по географии Академии наук СССР  
и Л. Г. Ковалева, 1970

PLATE 4: ROCK EFFIGY

Самостоятельно в машинописном и печатном виде не распространяется.  
Включен в "Список литературы и документов": Москва, Издательство  
МПС РФ. Серия "Список литературы". 7,000 копий тиражом.

[illegible]

**Abstract:** This collection of articles is intended for technical personnel in machine planning, designing organizations, and scientific research institutes. It may also be useful to skilled workers.

[illegible]

2015 07 20T20:30

**Polytechnic Institute of Technology**. This institute (formerly) set up of Special and Interval  
Education Units from the work experience of the "Transit Polytechnic" Plant.  
(Leningrad)

U.S. Lib. [Hobby], Multi-Purpose Production Lines (From the North Expressions and of the Crystalline Images)

Refinery, B.A. (Vormash) Group [Processing] and related sectors in 2000  
1st Production

Robert Ladd (now), Group Supts and Multiproduct Lines for Pat. Manufacturing  
in the L'Oréal World Corporation (L'Oréal World Plant)

Reportage in Application of the Group Method in  
 No. 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 84

Production of Continuous Production Methods and  
Application of Assembly Operations in Process-Improvement Manufacturing

**PAGE 11. GENERAL PRINCIPLES OF GROUP PROCEEDINGS**

Elizabeth P.D. [Leningrad]. The Importance of "Recording Group Processes" in the Relationships of the Leningrad Scientists

# Rosmary, J. B. [Cor'ly]. High-Efficiency Processing

~~1943-44~~ <sup>1944-45</sup> (continued). The results of several years operations of a plant employing group machines.

**Brunshviler, V. A.** [Leningrad]. The Experience of Introducing Group-Processing Methods in an Optical-Technician's Plant. 2

Wierzbicki, G.M. (Sverdlovsk). The Experience of Introducing Group-Processing Under Conditions of Piece and Small-lot Production in the Uralskharavod

### HELEN KRYE, M.P. [Kryerberg]. Special Features in the Development of Partnership Processes With the Introduction of Group Psychology of Facts

S/123/61/000/014/011/045  
A004/A101

AUTHOR: Ivanov, Ye. K.

TITLE: Results of many years of gang-working technology

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 14, 1961, 1, abstract  
14B2 (V sb. "Gruppovaya tekhnol. v mashinostr. i priborostr.",  
Moscow - Leningrad, Mashgiz, 1960, 280-285)

TEXT: The author presents the results of the work of a plant having introduced gang-machining methods of components in 1953. At present the work on turret lathes, lathes, automatics, milling, drilling and engraving machines is carried out by this method, as well as the blank production by pressure casting, liquid stamping and galvanic and painting operations. In the course of five years, production by the gang technology has increased by a factor of 3 without extending the production area, the labor productivity has increased by 2.5 times and 10 million rubles have been saved. An analysis of the results shows that the maximum efficiency during gang working is obtained on turret lathes, viz. on the average 20-25,000 rubles per turret lathe in two-shift operation. Shop costs in 1958 amounted to 52% of 1953. The consumption of standard tools was reduced

Card 1/2

S/123/61/000/014/011/045  
A004/A101

Results of many years of gang-working technology

by 41%, that of special tools by 56%. Since gang working has been introduced the plant organization system, production preparation, planning, material supply and exploitation of equipment have been simplified. The author presents some examples. There are two figures.

I. Briskman

[Abstracter's note: Complete translation]

Card 2/2

~~IVANOV, Yevgeniy Konstantinovich; GLAZOV, G.A., prof., red.;~~  
~~YEMEL'YANOVA, Ye.V., red.; PRESNOVA, V.A., tekhn. red.~~

[Organization and technological processes of multiple machining] Organizatsiia i tekhnologiya gruppovogo proizvodstva.  
Leningrad, Lenizdat, 1963. 154 p. (MIRA 16:9)  
(Metal cutting)

IVANOV, Ye.K.

Introducing multiple machining methods in the instrument industry.  
Mashinostroitel' no.1s42-43 Ja '64. (MIRA 17:2)

1. Glavnyy inzh. Leningradskogo ob"yedineniya optiko-mekhanicheskikh  
predpriyatiy.

ACC NR: AP7004994

SOURCE CODE: UR/0048/66/030/009/1530/1532

AUTHOR: Abdullayeva, V.G.; Ivanov, Ye.L.; Shirogorov, A.A.

ORG: none

TITLE: Some problems encountered in investigating "optronic" circuits /Report, Fourteenth All-Union Conference on Luminescence (Crystal Phosphors) held at Riga, 16-23 Sept. 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no.9, 1966, 1530-1532

TOPIC TAGS: electroluminescence, photoconductor, flip flop circuit, electroluminescence panel

ABSTRACT: The "optronic" circuit discussed in this paper consists of an electroluminescence cell and a photoconductor connected in series and with optical feedback between them. Such a system can operate in one of three regimes, depending on the characteristics of the electroluminescence cell and the photoconductor, the supply voltage, and the feedback constant: an amplifying regime, in which there is one stable equilibrium of low brightness; the optron regime, in which there are low- and high-brightness stable equilibria and an intermediate-brightness unstable equilibrium; and a self-excited regime, in which there is one high-brightness stable equilibrium. In this paper design equations are derived for this system on the assumptions that the brightness of the electroluminescence cell is proportional to the 3.39-th power

Card 1/2

ACC NR: AP7004994

of the voltage across it and the conductance of the photoconductor is a linear function of the illumination intensity. Graphical solution of the design equations is discussed and a nomogram is presented. Experiments with a type EL-510 electroluminescence cell and a type C-093 CdS photoconductor gave results that were nearly, but not quite, in agreement with the calculations. The small discrepancy is ascribed to the approximate nature of the assumptions on which the design equations are based. Optrons should be useful as memory elements for electroluminescent display panels. Orig. art. has: 6 formulas and 4 figures.

SUB CODE: 20,09

SUBM DATE: none

ORIG. REF: 001

Card 2/2



IVANOV, Ye. M., general-mayor meditsinskoy sluzhby; KRUPIN, A.S.,  
polkovnik meditsinskoy sluzhby v otstavke

The oldest in the navy. Voen. med. zhur. no.10:43-47  
0 '65. (MIRA 18:11)

IVANOV, YE. M.

Ivanov, Ye. M.

"The theory and calculation of transformers with short-circuited secondary ferromagnetic windings (as applied to the inductive heating of metals)." Min Higher Education USSR. Novocherkassk Polytechnic Inst Imeni Sergo Ordzhonikidze. Novocherkassk, 1956. (Dissertation for the Degree of Candidate in Technical Sciences).

Knizhnaya letopis'

No 34, 1956. Moscow.

T. V. Ivanov, 1957

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SOV/144-58-10-3/17

AUTHOR: Ivanov, Ye.M., Senior Lecturer

TITLE: Induction Heating of Ferromagnetic Bodies at Temperatures  
Below the Curie Point (Induktsionnyy nagrev  
ferromagnitnykh tel nizhe tochki magnitnykh prevrashcheniy)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Elektromekhanika,  
1958, Nr 10, pp 18-35 (USSR)

ABSTRACT: Hollow ferromagnetic cylinders are often heated to  
temperatures of the order of 200 to 300°C by induction  
heating at power frequency for the purpose of making  
shrink fits. When the cylinders are very long they  
are usually placed inside cylindrical windings as shown  
in Fig 1a, but when the cylinders are short the heating  
device has a magnetic circuit of electrical steel which  
may be either open as shown in Fig 1b or closed as  
shown in Fig 1B. When the ferromagnetic cylinder is  
placed inside a coil its outside surface is the most  
strongly heated but when it is desired to heat the inside  
surface most strongly a coil is usually placed inside  
the cylinder. Little work has been published on the  
design of induction heating installations operating at  
temperatures below the Curie point. The matter is

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considered in this article. It is assumed that the objects to be heated are straight cylinders, either solid or hollow, of ferromagnetic material and that they are of the same length as the primary winding with which they are co-axial. It is assumed that the magnetic field varies sinusoidally. An induction heating installation consisting of a ferromagnetic cylinder inside a coil is considered as a special kind of transformer. If the cylinder and coil are long the electromagnetic field between the coil and cylinder is plane-parallel. The internal magnetic reluctance of long cylinders is much greater than the external, which may therefore be neglected. In this case the magnetic field intensity in the air gap and at the cylinder surface is given by the ampere turns per unit length of the primary winding, see Eq (1). When the cylinder is short the field is not plane-parallel, the magnetic field is not uniform over the length of the cylinder. The internal magnetic reluctance of a short cylinder is commensurate

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with the external magnetic reluctance and, therefore, the field intensity is less than in the case of a long cylinder with the same mmf per unit length. If, however, a ferromagnetic path is provided to close the magnetic circuit the external magnetic reluctance is much reduced and the field becomes more nearly plane-parallel. When an external 'core' is provided, if the other conditions are also suitable, the field intensity may be considered uniform over the length of the heated cylinder but its value is less than in the previous case by a factor that makes allowance for air gaps in the magnetic circuit, see Eq (2). An equivalent diagram of a magnetic circuit of an induction heating installation in which the external magnetic circuit is closed by a ferromagnetic core is given in Fig 2a. The basic equations of the magnetic system are given in Eq (3). It is convenient to study a magnetic circuit in terms of the equivalent electrical circuit shown in this case in Fig 2b. The relationship between the reluctance of any particular section of the magnetic circuit and the equivalent

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impedance in the electrical circuit referred to one of the windings is given in eq (4). Then the complex amplitude of the primary winding voltage is given by Eq (5). It will be noticed that magnetic reluctances connected in parallel are replaced by electrical impedances connected in series and vice versa. The equivalent electrical impedances of the components of the magnetic circuit are then considered in turn. The equivalent impedance of the ferromagnetic cylinder is given by an expression (6) which allows for uneven distribution of magnetic field intensity and variable magnetic permeability in different layers of the bodies. A discussion is then given of the influence on the result of the electrical resistance of the ferromagnetic cylinder and of the variations of resistance with temperature and methods are given to determine the equivalent electrical resistance of the cylinder. The magnetic reluctance of the air gap is represented by Eq (16) which is, however, only valid when the flux

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distribution in the air gap is uniform, that is when the air gap is small in relation to the length of the cylinder. The principal formulae required for design purposes are then derived, in particular Eq (25) and the approximate graph (Fig 5). Selection of the main parameters of the primary winding and the magnetic circuit is then considered. During a certain period of time the equipment is required to heat the surface of the cylinder to a certain temperature. If the system voltage and the characteristics of the primary winding and magnetic circuit remain constant during the process of heating the active power diminishes and the temperature rises. As the temperature is raised  $300^{\circ}\text{C}$ , the power reduction is about 30% or the mean power is about 0.87 of the initial power. The power divided by the surface to be heated is defined as the specific power and a formula is given for the relationship between the mean specific power, the duration of the process and the surface temperature at the end of the process. This expression is simplified to the form of Eq (26). The

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electrical and magnetic circuits are best designed on the basis of the starting conditions, the specific active power required being given by Eq (27). Design formulae are then given for the various parts of the electrical and magnetic circuits. The problem of checking the calculations of the characteristics of an induction installation is then considered. Given the characteristics of the secondary, determination of the characteristics of the primary winding and magnetic circuit is relatively simple. However, for the purpose of checking, it is often necessary to determine the performance of the secondary circuit given the characteristics of the primary circuit and the magnetic circuit. In this case, the magnetic field intensity is unknown, so successive values of it are assumed and the voltage required to produce it is determined. Laborious calculations are often necessary to arrive at the answer. To reduce the labour required this article suggests a method of iteration and the conditions of convergency of the

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approximation are considered for the case of an induction installation operating with a fixed number of turns and constant voltage on the primary winding. A certain fixed temperature is assumed so that the properties of the cylinder being heated do not vary for the purpose of the calculation. It is then shown that the process of iteration can easily be made convergent. A worked example is then given of an installation for heating the tyres on the wheels of electric locomotives. The initial data are given and it is required to heat the tyre by  $320^{\circ}\text{C}$  in fifteen minutes. The procedure is to determine first the mean specific power, then the specific power at the start of the heating process. The graph of Fig 7 is then used to determine the required magnetic field intensity and then the cross-section of the magnetic circuit is determined. The size, number of turns and cross-section of the primary winding are then easily calculated. A number of check calculations are then made to see how the system works under various conditions. The results of calculations of the

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characteristics of the system at various temperatures and for various applied voltages are given in Fig 8 and 9 which also include test data obtained whilst heating tyres. It will be seen that the agreement between theory and practice is within  $\pm 10\%$  which is considered satisfactory. It is pointed out that if proper allowance is not made for the variation in the magnetic permeability of the material being heated the calculations would give 25% too much copper in the primary windings. There are 9 figures and 8 Soviet references.

ASSOCIATION:Novocherkasskiy politekhnicheskiy institut  
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ACCESSION NR: AP4043398

S/0181/64/006/008/2551/2552

AUTHOR: Ivanov, Ye. N.

TITLE: On the quadrupole moments of paramagnetic ions in a crystalline environment

SOURCE: Fizika tverdogo tela, v. 6, no. 8, 1964, 2551-2552

TOPIC TAGS: galvanomagnetic effect, quadrupole moment, spin orbit coupling, term splitting, cubic symmetry, line broadening

ABSTRACT: The electric quadrupole moment  $D_{ij}$  is calculated by the method of projection operators (M. H. L. Pryce, Proc. Phys. Soc., A63, 25, 1950). By writing down the quadrupole moment in terms of the equivalent operators (K. W. H. Stevens, Proc. Phys. Soc., A65, 209, 1952) it is shown finally that the value of the quadrupole moment is determined by the spin-orbit coupling constant and by the

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total splitting of the orbital term of the ion in the cubic field. The presence of quadrupole moments in paramagnetic ions leads to an additional broadening of the magnetoresonance lines. "In conclusion I am deeply grateful to K. A. Valiyev for valuable advice." Orig. art. has: 3 formulas.

ASSOCIATION: Kazanskiy gosudarstvennyy pedagogicheskiy institut (Kazan State Pedagogical Institute)

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